A

DESCRIPTION OF TWO MUSCLES

SURROUNDING

THE MEMBRANOUS PART OF THE URETHRA.

BY JAMES WILSON, ESQ. F. R. S. &c.

A VICE PRESIDENT OF THIS SOCIETY.

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THE difficulty occasionally met with in introducing into the bladder either a bougie or catheter, induces me to lay before the Society a description of certain muscular fibres, not generally known, the contraction of which must occasionally prove a very powerful impediment to the entrance of either instrument.

In my lectures on the organs of generation, I have, for these last ten years, demonstrated to the students attending in Great Windmill Street, two very distinct fleshy bellies belonging to muscles of a triangu-

lar shape, united below by one common tendon, but each having a separate tendinous attachment to the inside of the symphysis of the pubes, and which are so placed as to surround the membranous part of the urethra. The tendon belonging exclusively to each muscle, is at first of a round shape, but soon becomes flattened as it descends; it is affixed to the back part of the symphysis of the pubes; in the adult, about one-eighth of an inch above the lower edge of the cartilaginous arch of the pubes, and nearly at the same distance below the attachment of the tendon of the bladder; to which, and to the tendon of the corresponding muscle, it is connected by very loose cellular membrane. The tendon descends at first in contact with, and parallel to its fellow; it soon becomes broader, and then sends off fleshy fibres which also increase in breadth, and when near to the upper surface of the membranous part of the urethra, separate from those of the opposite side, spread themselves on the side of the membranous part of the urethra through its whole extent, then fold themselves under it, and meet in a middle tendinous line, with similar fibres of the opposite side. One extremity of this common tendon is connected with the posterior part of the tendon joining the acceleratores urinæ muscles, and which, in the perineum joins also with some of the fibres of the sphincter ani and tranversales perinei muscles.

The line of tendon connecting the two bellies of these muscles, is in general very distinctly seen run-

ning from the apex of the prostate gland, along the under surface of the membranous portion of the urethra, until it enters the corpus spongiosum penis. Sometimes, however, it is more faintly marked, and the fleshy fibres then appear to be continued into each other.

From the attachment and course here described, one action of these muscles must be, to draw the membranous part of the urethra upwards, so as to compress it against the inside of the cartilaginous arch of the pubes. Another action must be, to contract the circle formed by them round the membranous portion, so as to diminish, and even close up that part of the passage for the urine. It is well known that the part where the membranous portion of the urethra joins the penis, is naturally the narrowest part of the canal; it is at this part, that the chief impediment is felt, in irritable urethræ, to the introduction of any instrument; and here strictures generally begin to be formed. The contraction of these muscular fibres must occasionally increase the difficulty, and sometimes of itself produce it. When bougies have been introduced into very irritable urethræ, and have been permitted to remain in them a few minutes, I have often observed, on their being withdrawn, that they were much flattened at that part which lay in the membranous portion of the urethra. This could only be occasioned by the muscles, which in the perineum are connected with the middle tendon of the muscles now described, con-

tracting at the same time, rendering the perineum a fixed point, and thereby obliging the fibres of the muscles surrounding the urethra, to form in their contraction a straighter line, and thus to compress the sides of the urethra more than the under part, and by this means to change the urethra from a circular to an elliptical form.

I have lately looked into the account which Winslow (the most accurate anatomist I know of, as far as he has written) gives of the muscles of these parts, and find he has some, not very intelligible descriptions, of small muscles which have not been mentioned by other authors; but none of them apply at all to those now described by me. My predecessor, in the Anatomical Lectures, Dr. Baillie, always demonstrated circular fleshy fibres surrounding the membranous part of the urethra, but he had not traced their attachment to the pubes, so as to consider them as forming distinct muscles. The fleshy fibres which spread over part of the prostate gland, from the tendon of the bladder, are very different from these. The cause of these muscles having been so long overlooked, has arisen, I believe, from their being in the neighbourhood, and having their fibres running something in the direction of those of the levatores ani; from which, however, they may be distinctly separated, by cutting through cellular membrane only. By attention to the following circumstance, any one who has not before searched for them may readily find them. There are some small veins

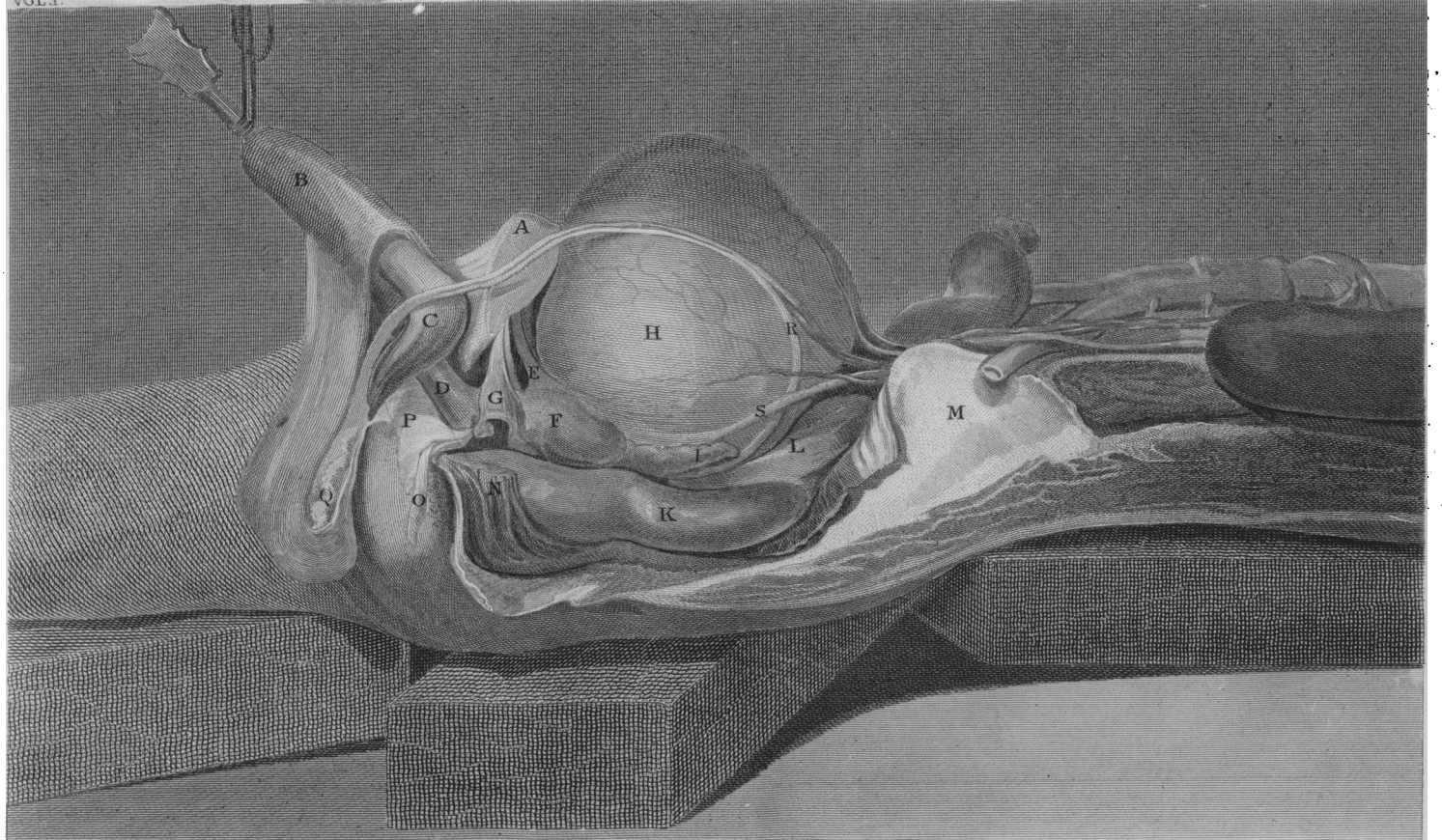
which always run from the sides of the bladder and prostate gland, forwards, to join those into which the vena magna dorsalis penis separates, below the arch of the pubes, and which are continued to join the internal iliac veins of each side. These veins invariably pass in the space between these muscles of the urethra, and the anterior edges of the levatores ani. Sometimes indeed, below the passage of these veins, I have found a little blending of the fibres of the two muscles, but never more than is often found between muscles contiguous to each other, and which always have been described as separate ones; indeed I have so frequently dissected them, that I find no more difficulty in exposing them, than I do in exposing any other muscles. *

Knowing that such muscles exist, we shall not hastily infer, that a permanent stricture of the urethra is formed, because we cannot immediately introduce a bougie or catheter. We shall therefore avoid using those remedies, which, though adapted to the cure of a stricture attended with a morbid alteration of the urinary passage, would, in a case arising from contraction only of these muscles, prove injurious to our patient. In cases of retention of urine, where no instrument will enter the bladder,

* In the female, muscles are also found having exactly similar attachments to the pubes as these described in the male; they descend and separate on the urethra, and I have more than once raced them round it. They are situated between the levatores ani and sphincteres vaginæ.

we shall be induced to persevere in the means best adapted to overcome a temporary, but forcible contraction of muscles, which are constant, but which are seldom thrown into such strong action. When this has been done, our second attempt to draw off the urine will probably succeed. It is my wish here, however, to point out an arrangement of muscular fibres till now overlooked, not to reason on such arrangement.

I have had several drawings taken by different gentlemen from the side views of the pelvis, made for the lectures, in different years. A copy of one made in 1804, by Mr. Cliff, whose accuracy in delineating anatomical subjects is well known, accompanies this description. These muscles are seen of the size they are always found to be, as relative to the other parts.



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C. Heath. sculp.

Explanation of the Plate at page 180.

A. The symphysis of the os pubis.

B. The penis, having a staff introduced along the urethra into the bladder.

C. The left crus of the penis detached from its bony connection, and turned to one side.

D. The corpus spongiosum and bulb of the urethra.

E. The tendinous attachment of the bladder.

F. The prostate gland.

G. The muscle described in the paper, which surrounds and attaches the membranous part of the urethra to the symphysis of the pubes. The dark lines behind this muscle represent the edge of the levator ani muscle of the right side.

H. The bladder.

I. The vesicula seminalis.

K. The rectum.

L. The peritoneum, reflected from the rectum to the bladder.

M. The sacrum, where it forms the joint with the ileum.

N. The sphincter ani muscle.

O. The transversalis perinei muscle detached from the ischium, and turned to one side.

P. The accelerator urinæ muscle detached from the side of the urethra.

Q. The testicle.

R. The vas deferens.

S. The ureter.